NOTICE OF ALLOWANCE AND FEE(S) DUE

4955	7590	07/20/2009

WARE FRESSOLA VAN DER SLUYS & ADOLPHSON, LLP
BRADFORD GREEN, BUILDING 5
755 MAIN STREET, P O BOX 224
MONROE, CT 06468

EXAMINER
FLORES, LEON

ART UNIT	PAPER NUMBER
2611	

DATE MAILED: 07/20/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,396	10/21/2005	Alfonso Troya	536-009.014	2203

TITLE OF INVENTION: METHOD AND DEVICE FOR FRAME DETECTION AND SYNCHRONIZER

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	10/20/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: <u>Mail</u>

Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

or <u>Fax</u> (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

4955   7590   07/20/2009

WARE FRESSOLA VAN DER SLUYS & ADOLPHSON, LLP
BRADFORD GREEN, BUILDING 5
755 MAIN STREET, P O BOX 224
MONROE, CT 06468

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

_____ (Depositor's name)

_____ (Signature)

_____ (Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,396	10/21/2005	Alfonso Troya	536-009.014	2203

TITLE OF INVENTION: METHOD AND DEVICE FOR FRAME DETECTION AND SYNCHRONIZER

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	10/20/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
FLORES, LEON	2611	375-340000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE   (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)
☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____   Date _____

Typed or printed name _____   Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,396	10/21/2005	Alfonso Troya	536-009.014	2203

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EXAMINER
FLORES, LEON

ART UNIT	PAPER NUMBER
2611	

DATE MAILED: 07/20/2009

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 569 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 569 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

	Application No.	Applicant(s)
Notice of Allowability	10/521,396	TROYA ET AL.
	Examiner	Art Unit	
	LEON FLORES	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *4/20/2009*.

2. ☒ The allowed claim(s) is/are *1-6,9-14 and 16-30*.

3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All   b) ☐ Some*   c) ☐ None   of the:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.

   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of

      Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☐ Examiner's Statement of Reasons for Allowance

9. ☒ Other *FAX*.

DETAILED ACTION

EXAMINER'S AMENDMENT

1.   An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview

with Mr. Alfred A. Fressola (Reg. No. 27,550) on 7/8/2009.

In the claims:

Re claim 1, the limitation of '*A method for the detection of the reception of a data frame*

in an input signal ($Y_{OFF}(n)$), said data frame comprising periodically repeated symbols at

the beginning, comprising the steps of a) sampling said input signal ($Y_{OFF}(n)$)with a

predetermined sampling rate, b) generating a first signal ($|J(k)|^{2}$) that is dependent on

an autocorrelation of said input signal with a delayed copy of said input signal, c)

detecting a plateau in said first signal ($|J(k)|^{2}$), and d) generating an output signal that is

indicative of detecting said ptateal~, plateau, wherein said step of detecting a plateau

comprises the steps of c1) generating a differentiator signal ($J_{DIFF}(k)$), which is

dependent on rhea difference of a first sample of said first signal and a second sample

of said first signal that was taken a first predetermined number of sampling periods

earlier, and c2) detecting an absolute maximum of said differentiator signal ($J_{DIFF}(k)$)

within a second predetermined number of sampling periods' **has been changed to** ---*A*

method for the detection of the reception of a data frame in an input signal ($Y_{OFF}(n)$),

said data frame comprising periodically repeated symbols at the beginning, comprising

the steps of a) sampling said input signal ($Y_{OFF}(n)$) with a predetermined sampling rate,

b) generating a first signal ($|J(k)|^2$) that is dependent on an autocorrelation of said input

signal with a delayed copy of said input signal, c) detecting a plateau in said first signal

($|J(k)|^2$), and d) generating an output signal that is indicative of detecting said plateau,

plateau, wherein said step of detecting a plateau comprises the steps of c1) generating

a differentiator signal ($J_{DIFF}(k)$), which is dependent on rhea difference of a first sample

of said first signal and a second sample of said first signal that was taken a first

predetermined number of sampling periods earlier, and c2) detecting an absolute

maximum of said differentiator signal ($J_{DIFF}(k)$) within a second predetermined number

of sampling periods, <u>further comprising a step of detecting a falling slope in said</u>

<u>differentiator signal ($J_{DIFF}(k)$), wherein detecting a falling slope comprises the steps of</u>

<u>generating an accumulation signal that is dependent on the sum of said differentiator</u>

<u>signal ($J_{DIFF}(k)$) over a fourth predetermined number of consecutive sampling periods,</u>

<u>comparing said current accumulation signal with the last previous accumulation signal</u>

<u>representing without overlap said fourth predetermined number of consecutive earlier</u>

<u>sampling periods, and generating a group peak detection signal indicative of whether or</u>

<u>not the value of said current accumulation signal is smaller than the value of said earlier</u>

<u>accumulation signal</u>---.

Claim 7 has been cancelled.

Claim 8 has been cancelled.

Re claim 9, the limitation of '*A method according to claim 6, comprising a step of
generating a maximum detection signal indicative of the condition that said
instantaneous peak detection signal indicates that the count index has reached the
predetermined count value, and that said group peak detection signal indicates that the
value of said current accumulation signal is smaller than said value of said earlier
accumulation signal*' **has been changed to** ---*A method for the detection of the
reception of a data frame in an input signal ($Y_{OFF}(n)$), said data frame comprising
periodically repeated symbols at the beginning, comprising the steps of a) sampling said
input signal ($Y_{OFF}(n)$)with a predetermined sampling rate, b) generating a first signal
($|J(k)|^2$) that is dependent on an autocorrelation of said input signal with a delayed copy
of said input signal, c) detecting a plateau in said first signal ($|J(k)|^2$), and d) generating
an output signal that is indicative of detecting said ptateal~, plateau, wherein said step
of detecting a plateau comprises the steps of c1) generating a differentiator signal
($J_{DIFF}(k)$), which is dependent on rhea difference of a first sample of said first signal and
a second sample of said first signal that was taken a first predetermined number of
sampling periods earlier, and c2) detecting an absolute maximum of said differentiator
signal ($J_{DIFF}(k)$) within a second predetermined number of sampling periods, wherein
said step c2) of detecting an absolute maximum comprises an instantaneous peak
detection step and a step of detecting a falling slope in the differentiator signal ($J_{DIFF}(k)$),*

wherein the instantaneous peak detection step comprises a step of comparing the

differentiator signal ($J_{DIFF}(k)$) of a current sampling period with the differentiator signal

($J_{DIFF}(k)$) of a next previous sampling period, and a step of saving the differentiator

signal ($J_{DIFF}(k)$) of the current sampling period to a register, given the condition that its

value is larger than that of the differentiator signal ($J_{DIFF}(k)$) of the previous sampling

period, further comprising a step of incrementing a count index by one, given the

condition that the value of said differentiator signal ($J_{DIFF}(k)$) of said current sampling

period is equal or smaller than that of said differentiator signal ($J_{DIFF}(k)$) saved in said

register, further comprising a step of generating an instantaneous peak detection signal

indicative of the condition whether or not the count index has reached a predetermined

count value; and *further comprising a step of generating a maximum detection signal*

indicative of the condition that said instantaneous peak detection signal indicates that

the count index has reached the predetermined count value, and that said group peak

detection signal indicates that the value of said current accumulation signal is smaller

than said value of said earlier accumulation signal---.

Re claim 14, the limitation of '*A frame detector for detecting the reception of a data*

frame in an input signal ($Y_{OFF}(n)$), said data frame comprising periodically repeated

symbols at the beginning, comprising a) a sampling unit adapted to sample said input

signal ($Y_{OFF}(n)$) with a predetermined sampling rate, b) an autocorrelation unit adapted

to transform said input signal ($Y_{OFF}(n)$) into a first signal ($|J(k)|^2$) that is dependent on an

autocorrelation of said input signal with a delayed copy of said input signal, c) a plateau

detector, adapted to detect a plateau in said first signal ($|J(k)|^2$), and d) an output unit

adapted to generate an output signal that is indicative of detecting said plateau, wherein

said plateau detector is adapted to generate a differentiator signal ($J_{DIFF}(k)$), which is

dependent on the difference of a first sample of said first signal and a second sample of

said first signal a predetermined number of sampling periods earlier, to detect an

absolute maximum of said differentiator signal ($J_{DIFF}(k)$) within a predetermined range of

sampling periods, and to provide a signal indicative of detecting said absolute maximum

to said output unit' **has been changed to** *---A frame detector for detecting the reception*

of a data frame in an input signal ($Y_{OFF}(n)$), said data frame comprising periodically

repeated symbols at the beginning, comprising a) a sampling unit adapted to sample

said input signal ($Y_{OFF}(n)$) with a predetermined sampling rate, b) an autocorrelation unit

adapted to transform said input signal ($Y_{OFF}(n)$) into a first signal ($|J(k)|^2$) that is

dependent on an autocorrelation of said input signal with a delayed copy of said input

signal, c) a plateau detector, adapted to detect a plateau in said first signal ($|J(k)|^2$), and

d) an output unit adapted to generate an output signal that is indicative of detecting said

plateau, wherein said plateau detector is adapted to generate a differentiator signal

($J_{DIFF}(k)$), which is dependent on the difference of a first sample of said first signal and a

second sample of said first signal a predetermined number of sampling periods earlier,

to detect an absolute maximum of said differentiator signal ($J_{DIFF}(k)$) within a

predetermined range of sampling periods, and to provide a signal indicative of detecting

said absolute maximum to said output unit, <u>wherein said plateau detector comprises a</u>

<u>peak detection unit with a) a first detection unit connected to said input port and</u>

comprising a first memory unit, said first detection unit being adapted to comparing said

input signal ($J_{DIFF}(k)$) received through said input port with a first entry contained in said

first memory unit, and replacing said first entry by said input signal given the condition

that the value of said input signal ($J_{DIFF}(k)$) is larger than the value of said first entry; and

b) a second detection unit connected to said input port and comprising a second

memory unit, said second detection unit being adapted to - generating an accumulation

signal, that is dependent on the sum of a current input signal ($J_{DIFF}(k)$) and of said fourth

predetermined number of previous input signals ($J_{DIFF}(k)$), - comparing said

accumulation signal with a second entry contained in said second memory for at least,

and - replacing said second entry by said accumulation signal given the condition that

the value of said accumulation signal ($J_{DIFF}(k)$) is larger than the value of said second

entry, said peak detection unit being adapted to providing a peak detector output signal

at its output port indicative of whether or not said first entry has been unchanged for a

predetermined number of sample periods and said second entry has been changed in

said current sampling period---.

Claim 15 has been cancelled.

Re claim 19, the limitation of '*The synchronizing method of claim 17, wherein the step of*

estimating the frequency offset comprises a step of assigning a fine frequency offset

value dependent on the value of the coarse frequency offset according to the following

function:

$$\varepsilon = \alpha \qquad ; \text{if } (-0.25)/4 \leq \beta \leq (0.25)/4 \qquad (R1)$$

$$\varepsilon = \alpha \qquad ; \text{if } \alpha \geq 0 \text{ and } (0.25)/4 < \beta < (0.75)/4 \qquad (R2)$$

$$\varepsilon = 1 + \alpha \qquad ; \text{if } \alpha < 0 \text{ and } (0.25)/4 < \beta < (0.75)/4 \qquad (R3)$$

$$\varepsilon = 1 + \alpha \qquad ; \text{if } \beta \geq (0.75)/4 \qquad (R4)$$

$$\varepsilon = -1 + \alpha \qquad ; \text{if } \alpha \geq 0 \text{ and } (-0.75)/4 < \beta < (-0.25)/4 \qquad (R5)$$

$$\varepsilon = \alpha \qquad ; \text{if } \alpha < 0 \text{ and } (-0.75)/4 < \beta < (-0.25)/4 \qquad (R6)$$

$$\varepsilon = -1 + \alpha \qquad ; \text{if } \beta \leq (-0.75)/4 \qquad (R7).$$

' has been changed to ---*A method for the detection of the reception of a data frame in an input signal ($Y_{OFF}(n)$), said data frame comprising periodically repeated symbols at the beginning, comprising the steps of a) sampling said input signal ($Y_{OFF}(n)$) with a predetermined sampling rate, b) generating a first signal ($|J(k)|^2$) that is dependent on an autocorrelation of said input signal with a delayed copy of said input signal, c) detecting a plateau in said first signal ($|J(k)|^2$), and d) generating an output signal that is indicative of detecting said plateau, plateau, wherein said step of detecting a plateau comprises the steps of c1) generating a differentiator signal ($J_{DIFF}(k)$), which is dependent on rhea difference of a first sample of said first signal and a second sample of said first signal that was taken a first predetermined number of sampling periods earlier, and c2) detecting an absolute maximum of said differentiator signal ($J_{DIFF}(k)$) within a second predetermined number of sampling periods, further comprising a step of estimating a relative frequency offset (f_F) in an input signal ($Y_{OFF}(n)$)after said step of detecting a frame, wherein the estimating step comprises the steps of a) estimating a coarse frequency offset (13), and b) estimating a fine frequency offset (α) in*

dependence of said estimated coarse frequency offset (β), and wherein the step of

estimating the frequency offset comprises a step of assigning a fine frequency offset

value dependent on the value of the coarse frequency offset according to the following

function:

$$\varepsilon = \alpha \qquad ; \text{if} \ (-0.25)/4 \leq \beta \leq (0.25)/4 \qquad (R1)$$

$$\varepsilon = \alpha \qquad ; \text{if} \ \alpha \geq 0 \text{ and } (0.25)/4 < \beta < (0.75)/4 \qquad (R2)$$

$$\varepsilon = 1 + \alpha \qquad ; \text{if} \ \alpha < 0 \text{ and } (0.25)/4 < \beta < (0.75)/4 \qquad (R3)$$

$$\varepsilon = 1 + \alpha \qquad ; \text{if} \ \beta \geq (0.75)/4 \qquad (R4)$$

$$\varepsilon = -1 + \alpha \qquad ; \text{if} \ \alpha \geq 0 \text{ and } (-0.75)/4 < \beta < (-0.25)/4 \quad (R5)$$

$$\varepsilon = \alpha \qquad ; \text{if} \ \alpha < 0 \text{ and } (-0.75)/4 < \beta < (-0.25)/4 \quad (R6)$$

$$\varepsilon = -1 + \alpha \qquad ; \text{if} \ \beta \leq (-0.75)/4 \qquad (R7).$$

---.

Re claim 20, the limitation of '_The synchronizing method of claim 17, wherein the step of_

estimating the frequency offset comprises a step of assigning a fine frequency offset

value dependent on the value of the coarse frequency offset according to the following

function:

$$\varepsilon = \alpha \qquad \text{; if } (-0.1)/4 \le \beta \le (0.1)/4 \qquad \text{(R1)}$$

$$\varepsilon = \alpha \qquad \text{; if } \alpha \ge 0 \text{ and } (0.1)/4 < \beta < (0.9)/4 \qquad \text{(R2)}$$

$$\varepsilon = 1 + \alpha \qquad \text{; if } \alpha < 0 \text{ and } (0.1)/4 < \beta < (0.9)/4 \qquad \text{(R3)}$$

$$\varepsilon = 1 + \alpha \qquad \text{; if } \beta \ge (0.9)/4 \qquad \text{(R4)}$$

$$\varepsilon = \alpha \qquad \text{; if } \alpha < 0 \text{ and } (-0.9)/4 < \beta < (-0.1)/4 \qquad \text{(R5)}$$

$$\varepsilon = -1 + \alpha \qquad \text{; if } \alpha \ge 0 \text{ and } (-0.9)/4 < \beta < (-0.1)/4 \qquad \text{(R6)}$$

$$\varepsilon = -1 + \alpha \qquad \text{; if } \beta \le (-0.9)/4 \qquad \text{(R7)}.$$

' has been changed to --- _A method for the detection of the reception of a data frame in an input signal ($Y_{OFF}(n)$), said data frame comprising periodically repeated symbols at the beginning, comprising the steps of a) sampling said input signal ($Y_{OFF}(n)$) with a predetermined sampling rate, b) generating a first signal ($|J(k)|^2$) that is dependent on an autocorrelation of said input signal with a delayed copy of said input signal, c) detecting a plateau in said first signal ($|J(k)|^2$), and d) generating an output signal that is indicative of detecting said plateau, plateau, wherein said step of detecting a plateau comprises the steps of c1) generating a differentiator signal ($J_{DIFF}(k)$), which is dependent on rhea difference of a first sample of said first signal and a second sample of said first signal that was taken a first predetermined number of sampling periods earlier, and c2) detecting an absolute maximum of said differentiator signal ($J_{DIFF}(k)$) within a second predetermined number of sampling periods, further comprising a step of estimating a relative frequency offset (f_F) in an input signal ($Y_{OFF}(n)$)after said step of detecting a frame, wherein the estimating step comprises the steps of a) estimating a_

coarse frequency offset (13), and b) estimating a fine frequency offset (α) in

dependence of said estimated coarse frequency offset (β), and wherein the step of

estimating the frequency offset comprises a step of assigning a fine frequency offset

value dependent on the value of the coarse frequency offset according to the following

function:

$$\varepsilon = \alpha \qquad ; \text{ if } (-0.1)/4 \leq \beta \leq (0.1)/4 \qquad \text{(R1)}$$

$$\varepsilon = \alpha \qquad ; \text{ if } \alpha \geq 0 \text{ and } (0.1)/4 < \beta < (0.9)/4 \qquad \text{(R2)}$$

$$\varepsilon = 1 + \alpha \qquad ; \text{ if } \alpha < 0 \text{ and } (0.1)/4 < \beta < (0.9)/4 \qquad \text{(R3)}$$

$$\varepsilon = 1 + \alpha \qquad ; \text{ if } \beta \geq (0.9)/4 \qquad \text{(R4)}$$

$$\varepsilon = \alpha \qquad ; \text{ if } \alpha < 0 \text{ and } (-0.9)/4 < \beta < (-0.1)/4 \qquad \text{(R5)}$$

$$\varepsilon = -1 + \alpha \qquad ; \text{ if } \alpha \geq 0 \text{ and } (-0.9)/4 < \beta < (-0.1)/4 \qquad \text{(R6)}$$

$$\varepsilon = -1 + \alpha \qquad ; \text{ if } \beta \leq (-0.9)/4 \qquad \text{(R7)}.$$

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Allowable Subject Matter

2.   Claims (1-6, 9-14, 16-30) are allowed.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEON FLORES whose telephone number is (571)270-1201. The examiner can normally be reached on Mon-Fri 7-5pm Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/L. F./
Examiner, Art Unit 2611
July 12, 2009

/Mohammad H Ghayour/

Supervisory Patent Examiner, Art Unit 2611